R1EV58064BxxN Series
R1EV58064BxxR Series

64K EEPROM (8-Kword × 8-bit)
Ready/$\overline{\text{Busy}}$ function
RES function (R1EV58064BxxR)

R10DS0207EJ0100
Rev.1.00
Jun 09, 2014

Description

Renesas Electronics' R1EV58064BxxN series and R1EV58064BxxR series are electrically erasable and programmable EEPROM's organized as 8192-word × 8-bit. They have realized high speed, low power consumption and high reliability by employing advanced MONOS memory technology and CMOS process and circuitry technology. They also have a 64-byte page programming function to make their write operations faster.

Features

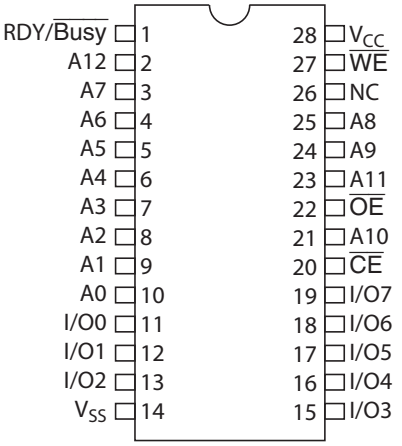
- Single supply: 2.7 to 5.5 V
- Access time:
  - 100 ns (max) at 2.7 V ≤ V_{CC} < 4.5 V
  - 70 ns (max) at 4.5 V ≤ V_{CC} ≤ 5.5 V
- Power dissipation:
  - Active: 20 mW/MHz (typ)
  - Standby: 110 µW (max)
- On-chip latches: address, data, $\overline{\text{CE}}$, $\overline{\text{OE}}$, $\overline{\text{WE}}$
- Automatic byte write: 10 ms (max)
- Automatic page write (64 bytes): 10 ms (max)
- Ready/$\overline{\text{Busy}}$
- $\overline{\text{Data}}$ polling and Toggle bit
- Data protection circuit on power on/off
- Conforms to JEDEC byte-wide standard
- Reliable CMOS with MONOS cell technology
- 10^5 or more erase /write cycles
- 10 or more years data retention
- Software data protection
- Write protection by $\overline{\text{RES}}$ pin (only the R1EV58064BxxR series)
- Temperature range: –40 to +85°C
- There are lead free products.

Ordering Information

Orderable Part Name	Access time	Package	Shipping Container	Quantity
R1EV58064BDANBI#B0	100ns	600mil 28-pin plastic DiP PRDP0028AB-A (DP-28V)	Tube	Max.13 pcs/tube Max. 325 pcs/inner box
R1EV58064BDARBI#B0	100ns			
R1EV58064BSCNBI#B0	100ns	400mil 28- pin plastic SOP PRSP0028DC-A (FP-28DV)	Tube	Max. 25 pcs/tube Max. 1,000 pcs/inner box
R1EV58064BSCRBI#B0	100ns			
R1EV58064BSCNBI#S0	100ns		Tape and reel	1,000 pcs/reel
R1EV58064BSCRBI#S0	100ns			
R1EV58064BTCNBI#B0	100ns	28-pin plastic TSOP PTSA0028ZB-A (TFP-28DBV)	Tray	Max. 60 pcs/tray Max. 600 pcs/inner box
R1EV58064BTCRBI#B0	100ns			

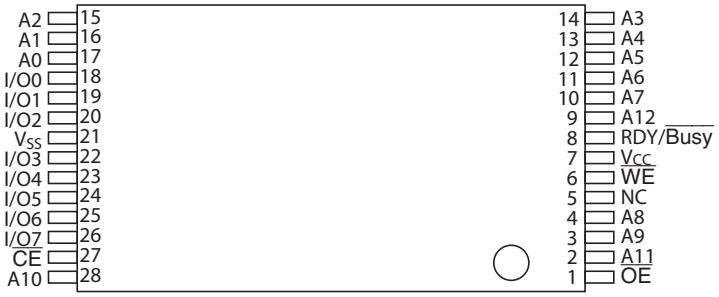
Pin Arrangement

R1EV58064BDAN Series
R1EV58064BSCN Series



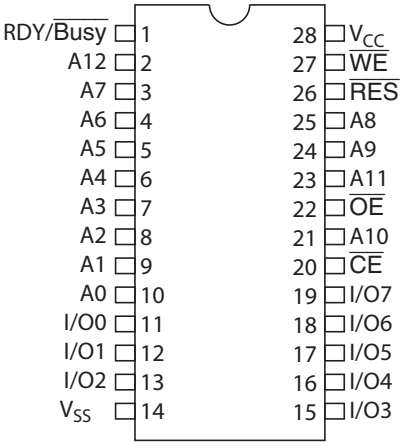
(Top view)

R1EV58064BTCN Series



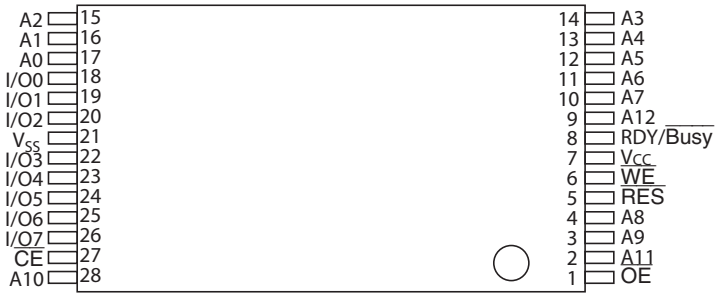
(Top view)

R1EV58064BDAR Series
R1EV58064BSCR Series



(Top view)

R1EV58064BTCR Series



(Top view)

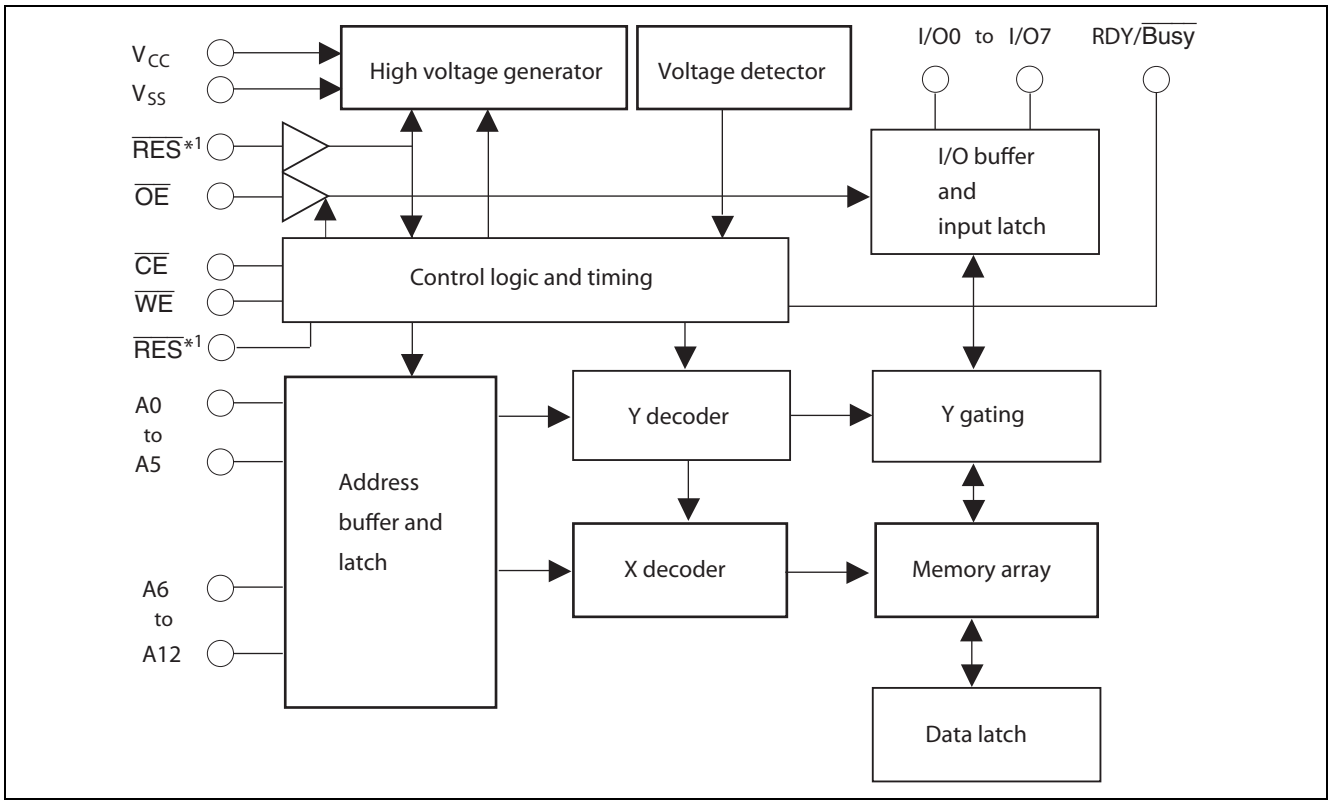
Pin Description

Pin name	Function
A0 to A12	Address input
I/O0 to I/O7	Data input/output
$\overline{OE}$	Output enable
$\overline{CE}$	Chip enable
$\overline{WE}$	Write enable
V_{CC}	Power supply
V_{SS}	Ground
RDY/$\overline{Busy}$	Ready busy
$\overline{RES}$*1	Reset
NC	No connection

Note: 1. This function is supported by only the R1EV58064BxxR series.

Block Diagram

Note: 1. This function is supported by only the R1EV58064BxxR series.



Operation Table

Operation	$\overline{CE}$	$\overline{OE}$	$\overline{WE}$	$\overline{RES}$*3	RDY/$\overline{Busy}$	I/O
Read	V_{IL}	V_{IL}	V_{IH}	V_H*1	High-Z	Dout
Standby	V_{IH}	×*2	×	×	High-Z	High-Z
Write	V_{IL}	V_{IH}	V_{IL}	V_H	High-Z to V_{OL}	Din
Deselect	V_{IL}	V_{IH}	V_{IH}	V_H	High-Z	High-Z
Write Inhibit	×	×	V_{IH}	×	—	—
Write Inhibit	×	V_{IL}	×	×	—	—
$\overline{Data}$ Polling	V_{IL}	V_{IL}	V_{IH}	V_H	V_{OL}	Dout (I/O7)
Program reset	×	×	×	V_{IL}	High-Z	High-Z

Notes: 1. Refer to the recommended DC operating conditions.
2. × : Don't care
3. This function supported by only the R1EV58064BxxR series.

Absolute Maximum Ratings

Parameter	Symbol	Value	Unit
Power supply voltage relative to V_{SS}	V_{CC}	–0.6 to +7.0	V
Input voltage relative to V_{SS}	Vin	–0.5*1 to +7.0*3	V
Operating temperature range *2	Topr	–40 to +85	°C
Storage temperature range	Tstg	–55 to +125	°C

Notes: 1. Vin min : –3.0 V for pulse width ≤ 50 ns.
2. Including electrical characteristics and data retention.
3. Should not exceed V_{CC} + 1 V.

Recommended DC Operating Conditions

Parameter	Symbol	Min	Typ	Max	Unit
Supply voltage	V_{CC}	2.7	—	5.5	V
	V_{SS}	0	0	0	V
Input voltage	V_{IL}	–0.3*1	—	0.6*5	V
	V_{IH}	2.4*2	—	V_{CC} + 0.3*3	V
	V_H*4	V_{CC} – 0.5	—	V_{CC} + 1.0	V
Operating temperature	Topr	–40	—	+85	°C

Notes: 1. V_{IL} min: –1.0 V for pulse width ≤ 50 ns.
2. V_{IH} = 3.0 V for V_{CC} = 3.6 to 5.5 V.
3. V_{IH} max: V_{CC} + 1.0 V for pulse width ≤ 50 ns.
4. This function is supported by only the R1EV58064BxxR series.
5. V_{IL} = 0.8 V for V_{CC} = 3.6 V to 5.5 V

DC Characteristics

(Ta = –40 to +85°C, V_{CC} = 2.7 to 5.5 V)

Parameter	Symbol	Min	Typ	Max	Unit	Test conditions
Input leakage current	I_{LI}	—	—	2*[1]	µA	V_{CC} = 5.5 V, Vin = 5.5 V
Output leakage current	I_{LO}	—	—	2	µA	V_{CC} = 5.5 V, Vout = 5.5/0.4 V
Standby V_{CC} current	I_{CC1}	—	1 to 2	5	µA	$\overline{CE}$ = V_{CC}
	I_{CC2}	—	—	1	mA	$\overline{CE}$ = V_{IH}
Operating V_{CC} current	I_{CC3}	—	—	6	mA	Iout = 0 mA, Duty = 100%, Cycle = 1 µs at V_{CC} = 3.6 V
		—	—	10	mA	Iout = 0 mA, Duty = 100%, Cycle = 1 µs at V_{CC} = 5.5 V
		—	—	15	mA	Iout = 0 mA, Duty = 100%, Cycle = 100 ns at V_{CC} = 3.6 V
		—	—	25	mA	Iout = 0 mA, Duty = 100%, Cycle = 70 ns at V_{CC} = 5.5 V
Output low voltage	V_{OL}	—	—	0.4	V	I_{OL} = 2.1 mA
Output high voltage	V_{OH}	$V_{CC} \times 0.8$	—	—	V	I_{OH} = –400 µA

Note: 1. I_{LI} on $\overline{RES}$: 100 µA max (only the R1EV58064BxxR series)

Capacitance

(Ta = +25°C, f = 1 MHz)

Parameter	Symbol	Min	Typ	Max	Unit	Test conditions
Input capacitance	Cin*[1]	—	—	6	pF	Vin = 0 V
Output capacitance	Cout*[1]	—	—	12	pF	Vout = 0 V

Note: 1. This parameter is sampled and not 100% tested.

AC Characteristics

Ta = –40 to +85°C, V_{CC} = 2.7 to 5.5 V

Test Conditions

- Input pulse levels : 0.4 V to 2.4 V (V_{CC} = 2.7 to 3.6 V), 0.4 V to 3.0 V (V_{CC} = 3.6 to 5.5 V)
  0 V to V_{CC} ($\overline{RES}$ pin*[2])
- Input rise and fall time : ≤ 5 ns
- Input timing reference levels : 0.8, 1.8 V
- Output load : 1TTL Gate +100 pF
- Output reference levels : 1.5 V, 1.5 V

Read Cycle 1 (2.7 ≤ V_{CC} < 4.5 V)

Parameter	Symbol	Min	Max	Unit	Test conditions
Address to output delay	t_{ACC}	—	100	ns	$\overline{CE}$ = $\overline{OE}$ = V_{IL}, $\overline{WE}$ = V_{IH}
$\overline{CE}$ to output delay	t_{CE}	—	100	ns	$\overline{OE}$ = V_{IL}, $\overline{WE}$ = V_{IH}
$\overline{OE}$ to output delay	t_{OE}	10	50	ns	$\overline{CE}$ = V_{IL}, $\overline{WE}$ = V_{IH}
Address to output hold	t_{OH}	0	—	ns	$\overline{CE}$ = $\overline{OE}$ = V_{IL}, $\overline{WE}$ = V_{IH}
$\overline{OE}$ ($\overline{CE}$) high to output float*[1]	t_{DF}	0	40	ns	$\overline{CE}$ = V_{IL}, $\overline{WE}$ = V_{IH}
$\overline{RES}$ low to output float*[1, 2]	t_{DFR}	0	350	ns	$\overline{CE}$ = $\overline{OE}$ = V_{IL}, $\overline{WE}$ = V_{IH}
$\overline{RES}$ to output delay*[2]	t_{RR}	0	450	ns	$\overline{CE}$ = $\overline{OE}$= V_{IL}, $\overline{WE}$ = V_{IH}

Write Cycle 1 (2.7 ≤ V_{CC} < 4.5 V)

Parameter	Symbol	Min*[3]	Typ	Max	Unit	Test conditions
Address setup time	t_{AS}	0	—	—	ns	
Address hold time	t_{AH}	50	—	—	ns	
$\overline{CE}$ to write setup time ($\overline{WE}$ controlled)	t_{CS}	0	—	—	ns	
$\overline{CE}$ hold time ($\overline{WE}$ controlled)	t_{CH}	0	—	—	ns	
$\overline{WE}$ to write setup time ($\overline{CE}$ controlled)	t_{WS}	0	—	—	ns	
$\overline{WE}$ hold time ($\overline{CE}$ controlled)	t_{WH}	0	—	—	ns	
$\overline{OE}$ to write setup time	t_{OES}	0	—	—	ns	
$\overline{OE}$ hold time	t_{OEH}	0	—	—	ns	
Data setup time	t_{DS}	50	—	—	ns	
Data hold time	t_{DH}	0	—	—	ns	
$\overline{WE}$ pulse width ($\overline{WE}$ controlled)	t_{WP}	200	—	—	ns	
$\overline{CE}$ pulse width ($\overline{CE}$ controlled)	t_{CW}	200	—	—	ns	
Data latch time	t_{DL}	100	—	—	ns	
Byte load cycle	t_{BLC}	0.3	—	30	µs	
Byte load window	t_{BL}	100	—	—	µs	
Write cycle time	t_{WC}	—	—	10*[4]	ms	
Time to device busy	t_{DB}	120	—	—	ns	
Write start time	t_{DW}	0*[5]	—	—	ns	
Reset protect time*[2]	t_{RP}	100	—	—	µs	
Reset high time*[2, 6]	t_{RES}	1	—	—	µs	

Notes: 1. t_{DF} and t_{DFR} are defined as the time at which the outputs achieve the open circuit conditions and are no longer driven.
2. This function is supported by only the R1EV58064BxxR series.
3. Use this device in longer cycle than this value.
4. t_{WC} must be longer than this value unless polling techniques or RDY/$\overline{Busy}$ are used. This device automatically completes the internal write operation within this value.
5. Next read or write operation can be initiated after t_{DW} if polling techniques or RDY/$\overline{Busy}$ are used.
6. This parameter is sampled and not 100% tested.
7. A6 through A12 are page addresses and these addresses are latched at the first falling edge of $\overline{WE}$.
8. A6 through A12 are page addresses and these addresses are latched at the first falling edge of $\overline{CE}$.
9. See AC read characteristics.

Read Cycle 2 ($4.5 \leq V_{CC} \leq 5.5$ V)

Parameter	Symbol	Min	Max	Unit	Test conditions
Address to output delay	t_{ACC}	—	70	ns	$\overline{CE}$ = $\overline{OE}$ = V_{IL}, $\overline{WE}$ = V_{IH}
$\overline{CE}$ to output delay	t_{CE}	—	70	ns	$\overline{OE}$ = V_{IL}, $\overline{WE}$ = V_{IH}
$\overline{OE}$ to output delay	t_{OE}	10	40	ns	$\overline{CE}$ = V_{IL}, $\overline{WE}$ = V_{IH}
Address to output hold	t_{OH}	0	—	ns	$\overline{CE}$ = $\overline{OE}$ = V_{IL}, $\overline{WE}$ = V_{IH}
$\overline{OE}$ ($\overline{CE}$) high to output float*[1]	t_{DF}	0	30	ns	$\overline{CE}$ = V_{IL}, $\overline{WE}$ = V_{IH}
$\overline{RES}$ low to output float*[1, 2]	t_{DFR}	0	350	ns	$\overline{CE}$ = $\overline{OE}$ = V_{IL}, $\overline{WE}$ = V_{IH}
$\overline{RES}$ to output delay*[2]	t_{RR}	0	450	ns	$\overline{CE}$ = $\overline{OE}$= V_{IL}, $\overline{WE}$ = V_{IH}

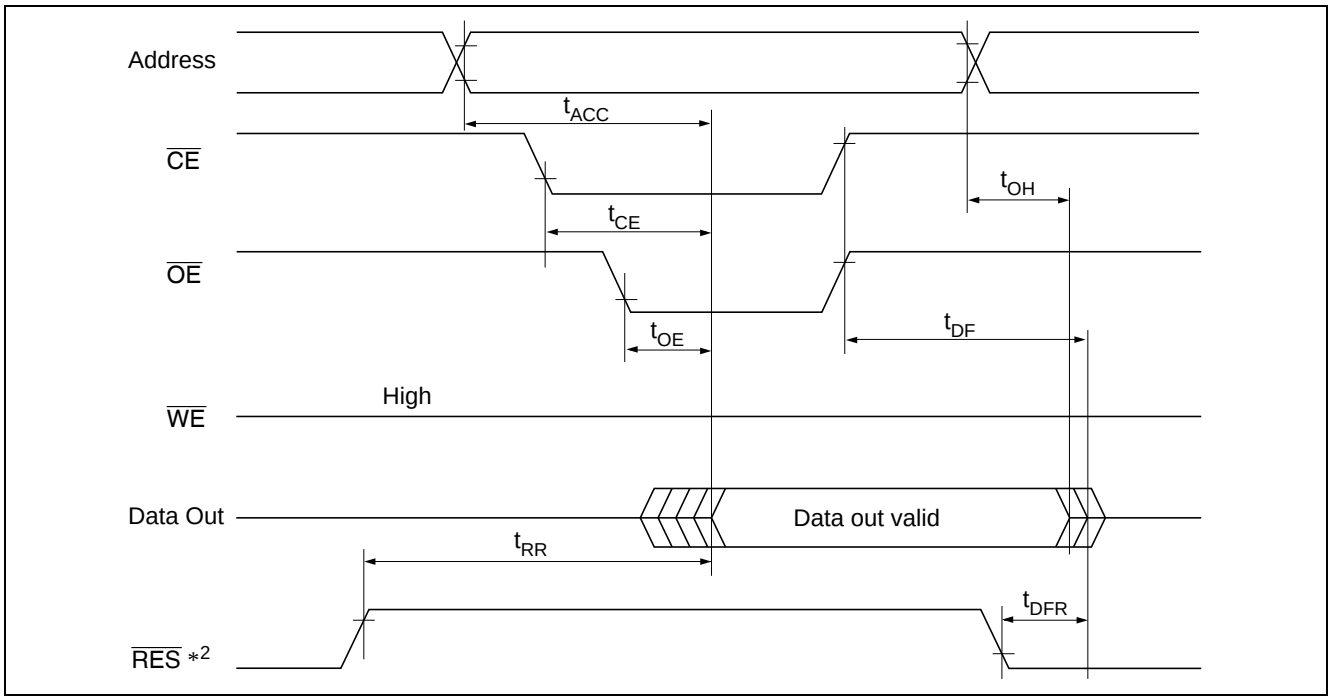
Write Cycle 2 ($4.5 \leq V_{CC} \leq 5.5$ V)

Parameter	Symbol	Min*[3]	Typ	Max	Unit	Test conditions
Address setup time	t_{AS}	0	—	—	ns	
Address hold time	t_{AH}	50	—	—	ns	
$\overline{CE}$ to write setup time ($\overline{WE}$ controlled)	t_{CS}	0	—	—	ns	
$\overline{CE}$ hold time ($\overline{WE}$ controlled)	t_{CH}	0	—	—	ns	
$\overline{WE}$ to write setup time ($\overline{CE}$ controlled)	t_{WS}	0	—	—	ns	
$\overline{WE}$ hold time ($\overline{CE}$ controlled)	t_{WH}	0	—	—	ns	
$\overline{OE}$ to write setup time	t_{OES}	0	—	—	ns	
$\overline{OE}$ hold time	t_{OEH}	0	—	—	ns	
Data setup time	t_{DS}	50	—	—	ns	
Data hold time	t_{DH}	0	—	—	ns	
$\overline{WE}$ pulse width ($\overline{WE}$ controlled)	t_{WP}	100	—	—	ns	
$\overline{CE}$ pulse width ($\overline{CE}$ controlled)	t_{CW}	100	—	—	ns	
Data latch time	t_{DL}	50	—	—	ns	
Byte load cycle	t_{BLC}	0.2	—	30	µs	
Byte load window	t_{BL}	100	—	—	µs	
Write cycle time	t_{WC}	—	—	10*[4]	ms	
Time to device busy	t_{DB}	120	—	—	ns	
Write start time	t_{DW}	0*[5]	—	—	ns	
Reset protect time*[2]	t_{RP}	100	—	—	µs	
Reset high time*[2, 6]	t_{RES}	1	—	—	µs	

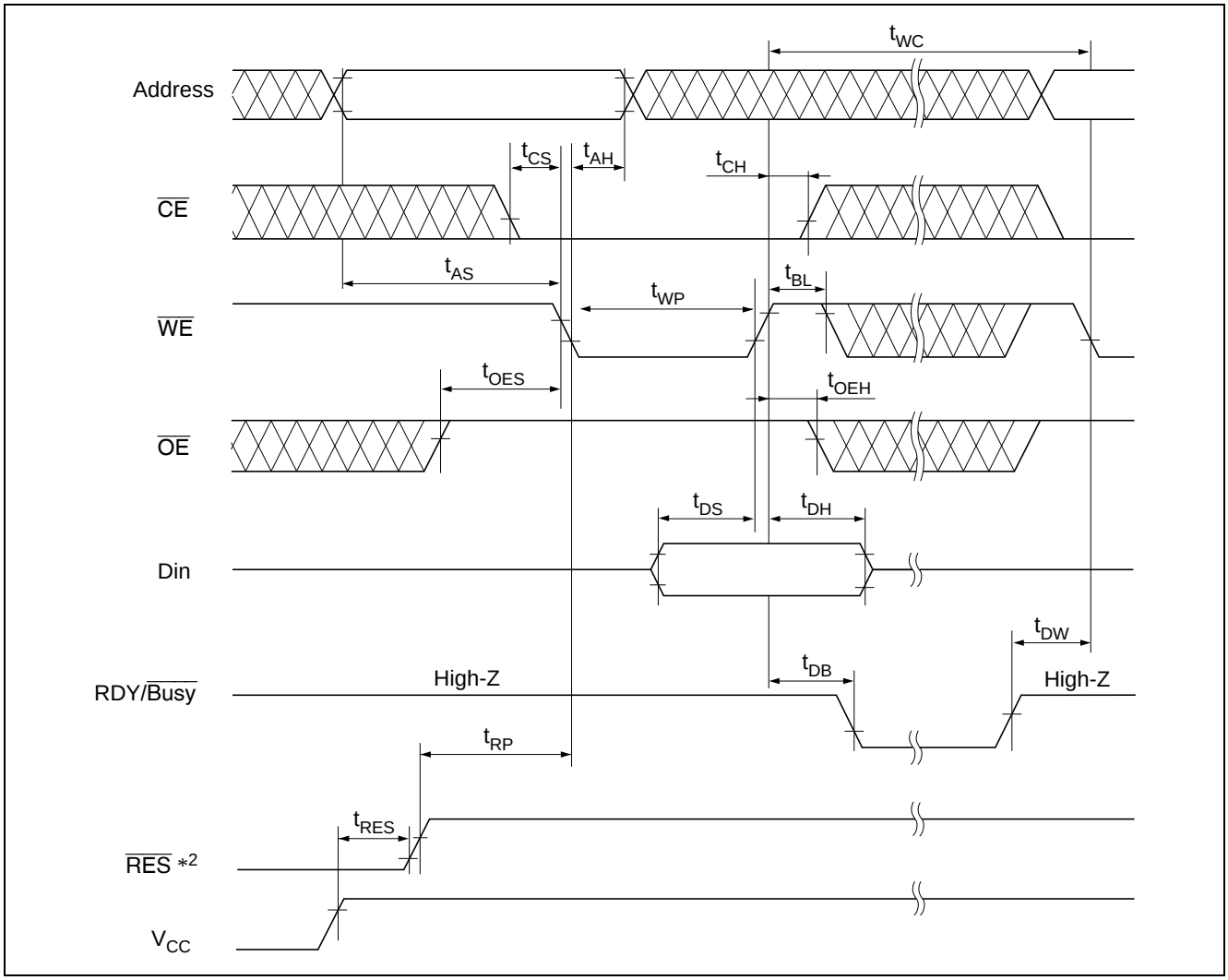
Notes: 1. t_{DF} and t_{DFR} are defined as the time at which the outputs achieve the open circuit conditions and are no longer driven.
2. This function is supported by only the R1EV58064BXXR.
3. Use this device in longer cycle than this value.
4. t_{WC} must be longer than this value unless polling techniques or RDY/$\overline{Busy}$ are used. This device automatically completes the internal write operation within this value.
5. Next read or write operation can be initiated after t_{DW} if polling techniques or RDY/$\overline{Busy}$ are used.
6. This parameter is sampled and not 100% tested.
7. A6 through A12 are page address and these addresses are latched at the first falling edge of $\overline{WE}$.
8. A6 through A12 are page address and these addresses are latched at the first falling edge of $\overline{CE}$.
9. See AC read characteristics.

Timing Waveforms

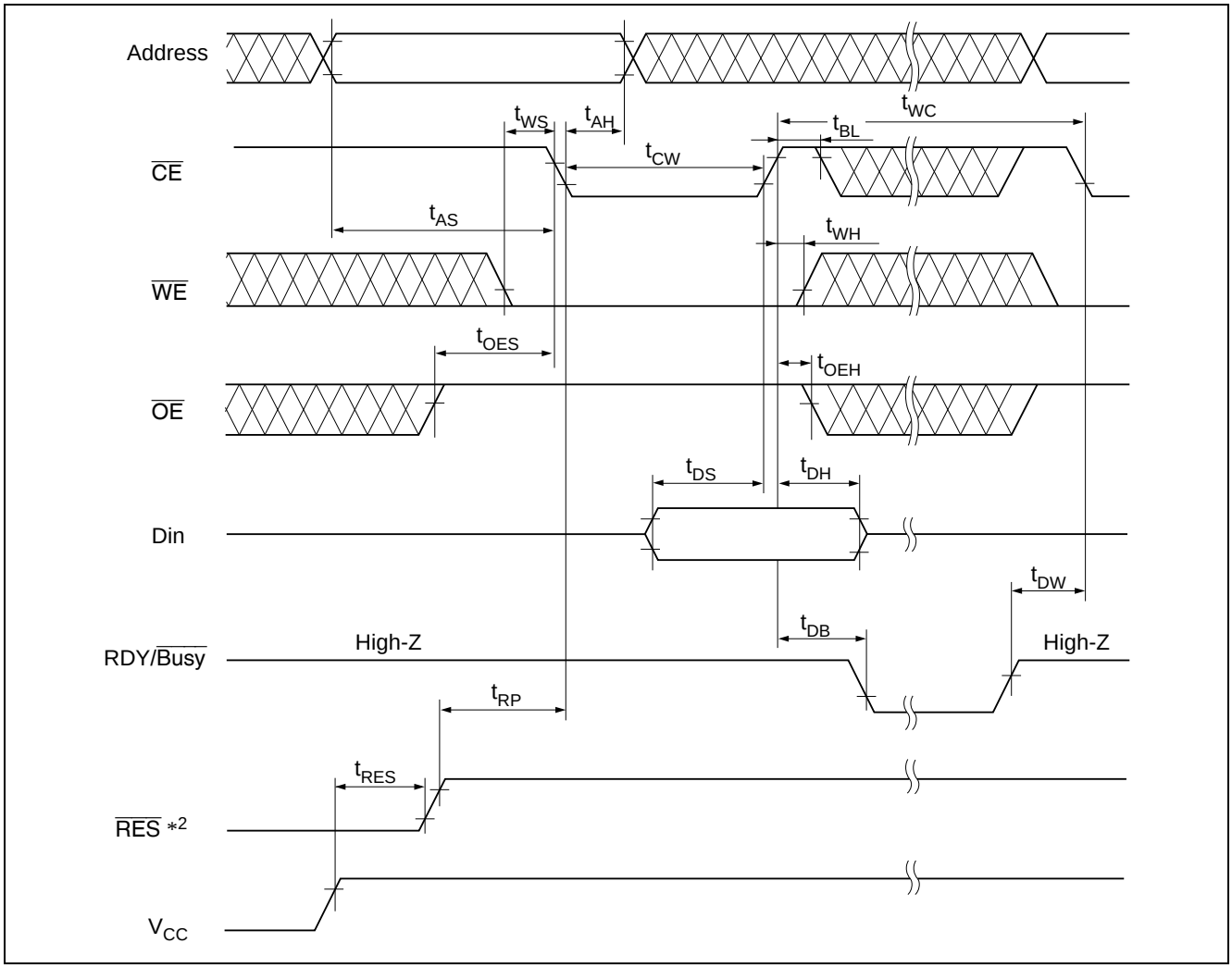
Read Timing Waveform



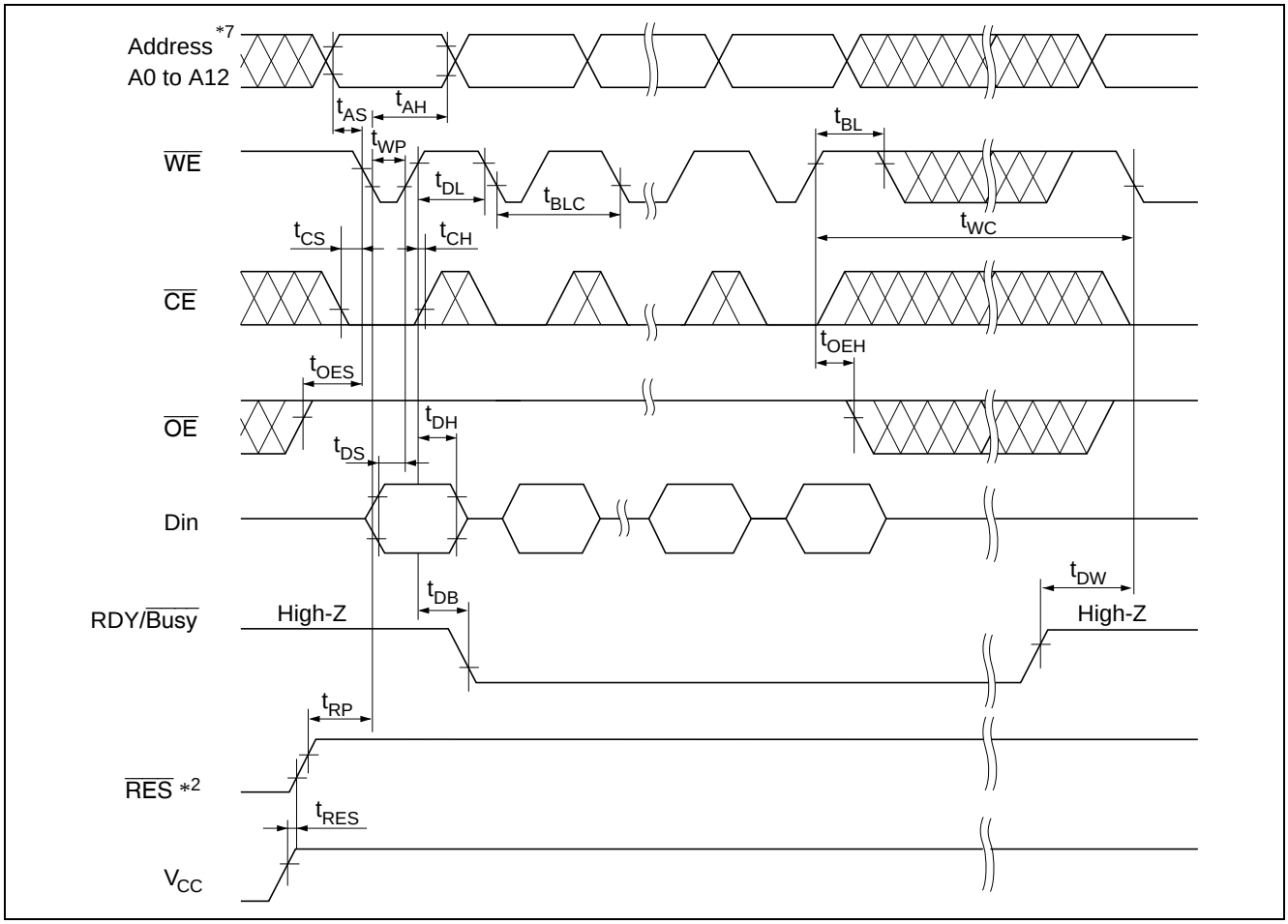
Byte Write Timing Waveform(1) ($\overline{WE}$ Controlled)



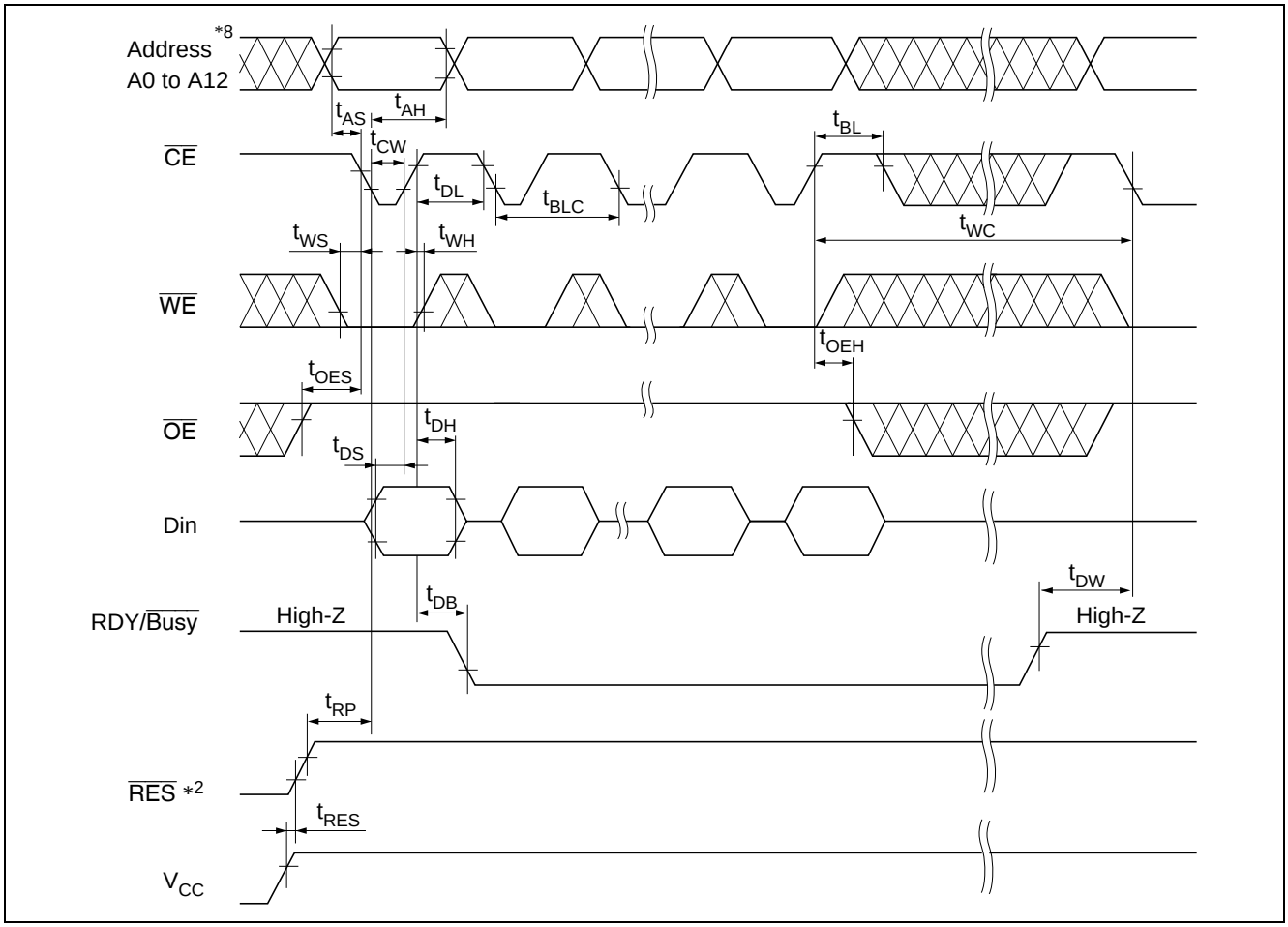
Byte Write Timing Waveform(2) ($\overline{CE}$ Controlled)



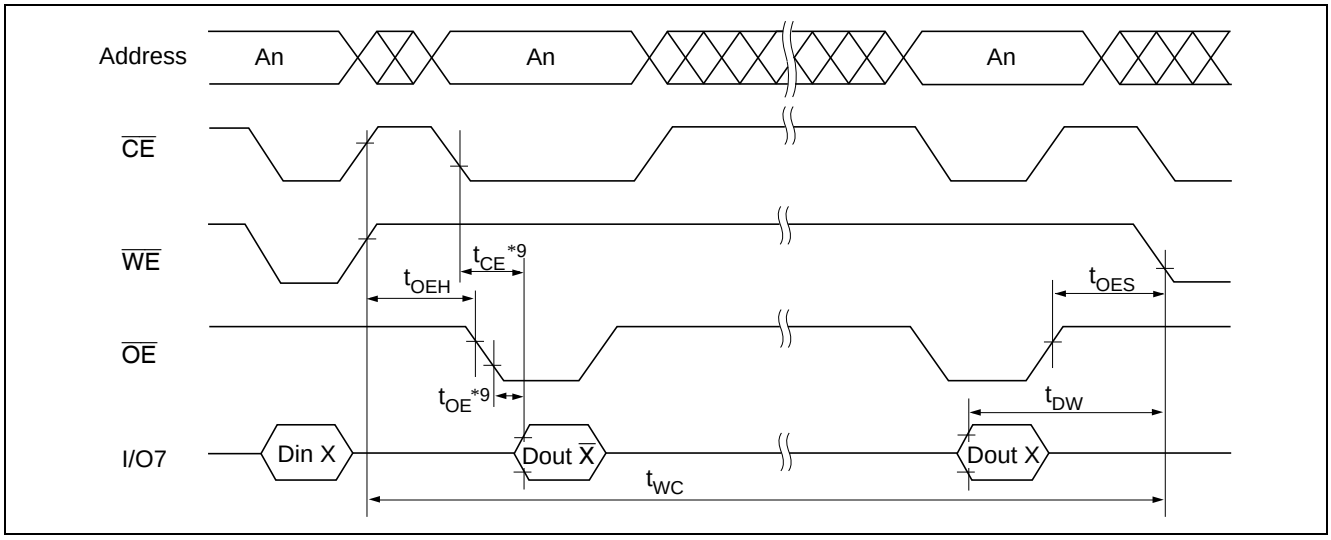
Page Write Timing Waveform(1) ($\overline{WE}$ Controlled)



Page Write Timing Waveform(2) ($\overline{CE}$ Controlled)



$\overline{\text{Data}}$ Polling Timing Waveform

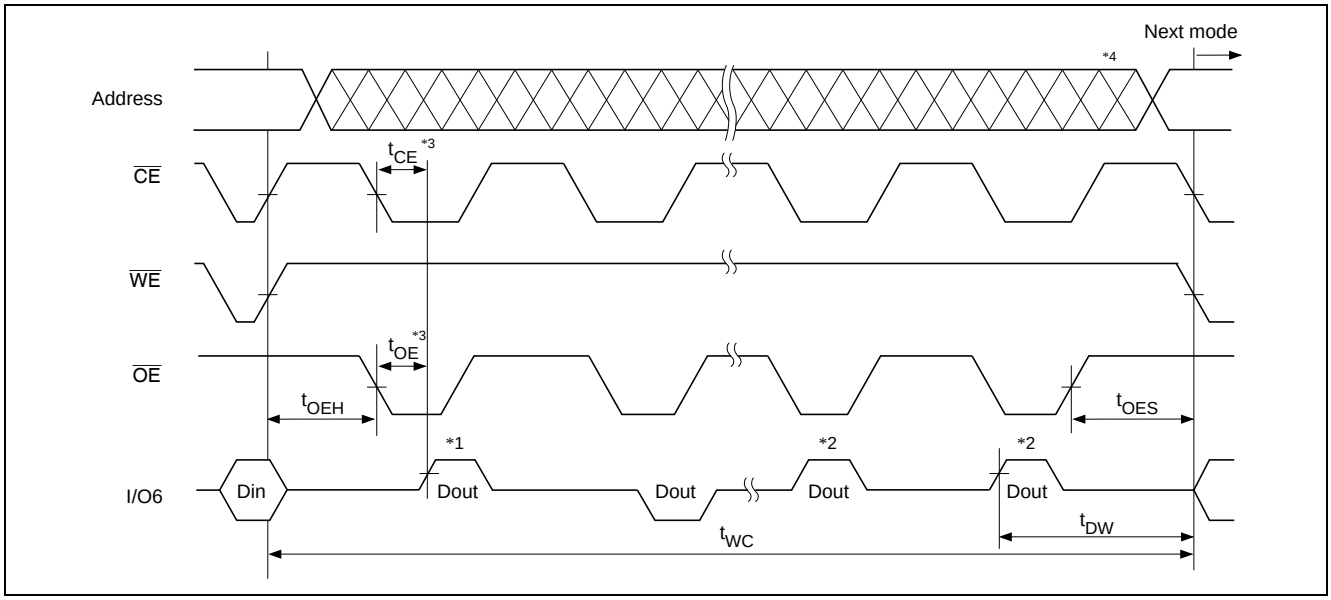


Toggle Bit

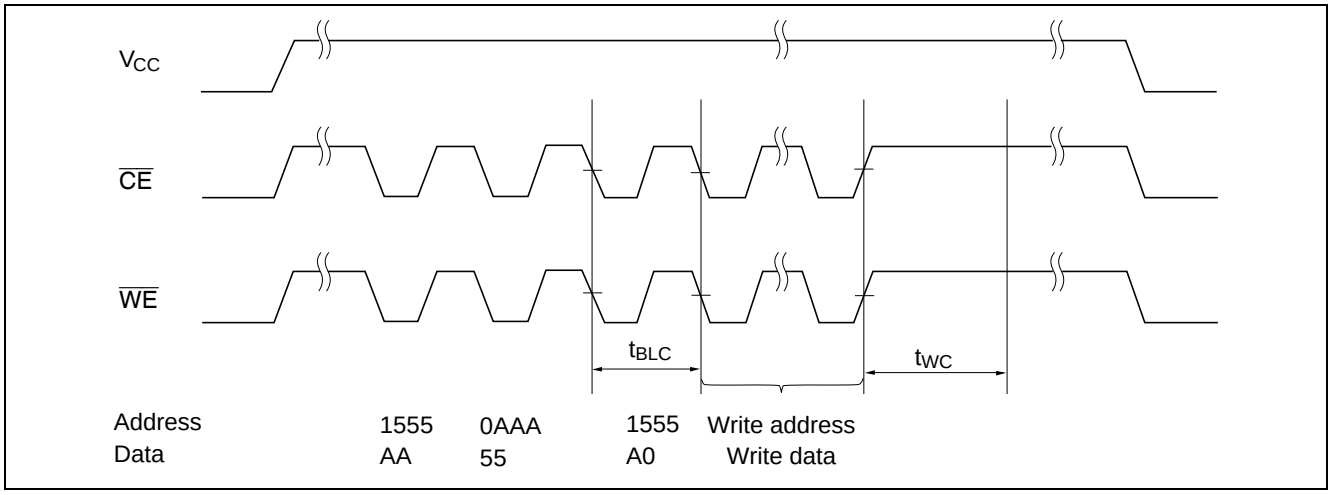
This device provide another function to determine the internal programming cycle. If the EEPROM is set to read mode during the internal programming cycle, I/O6 will charge from “1” to “0” (toggling) for each read. When the internal programming cycle is finished, toggling of I/O6 will stop and the device can be accessible for next read or program.

Toggle Bit Waveform

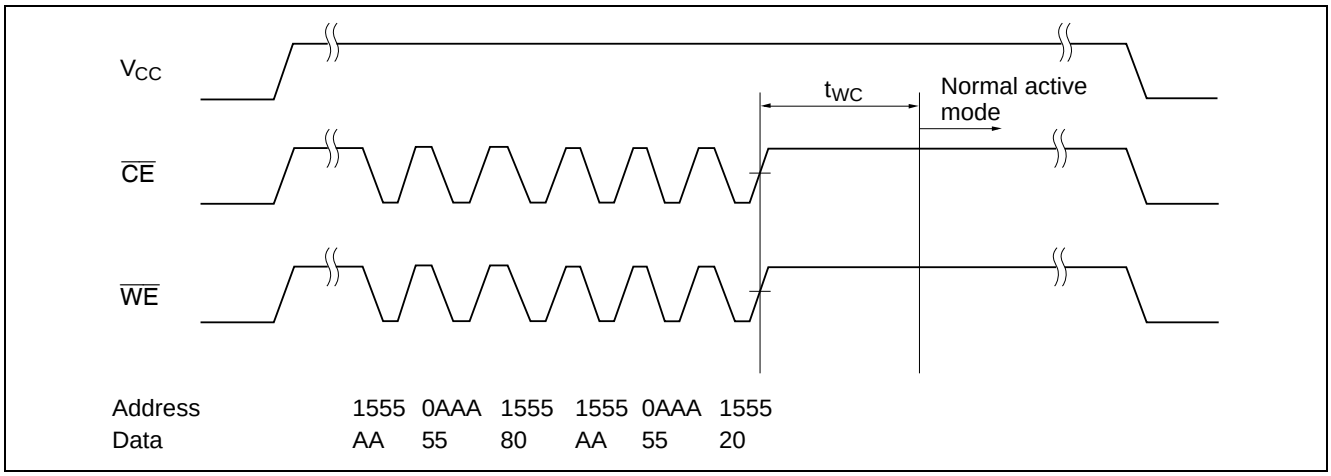
Notes: 1. I/O6 beginning state is “1”.
2. I/O6 ending state will vary.
3. See AC read characteristics.
4. Any address location can be used, but the address must be fixed.



Software Data Protection Timing Waveform(1) (in protection mode)



Software Data Protection Timing Waveform(2) (in non-protection mode)



Functional Description

Automatic Page Write

Page-mode write feature allows 1 to 64 bytes of data to be written into the EEPROM in a single write cycle. Following the initial byte cycle, an additional 1 to 63 bytes can be written in the same manner. Each additional byte load cycle must be started within 30 µs from the preceding falling edge of $\overline{WE}$ or $\overline{CE}$. When $\overline{CE}$ or $\overline{WE}$ is kept high for 100 µs after data input, the EEPROM enters write mode automatically and the input data are written into the EEPROM.

$\overline{\text{Data}}$ Polling

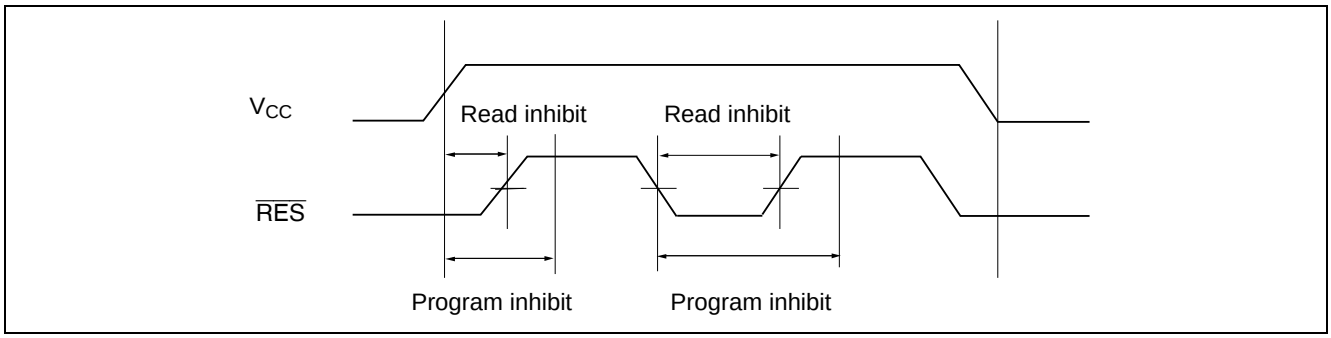
$\overline{\text{Data}}$ polling indicates the status that the EEPROM is in a write cycle or not. If EEPROM is set to read mode during a write cycle, an inversion of the last byte of data outputs from I/O7 to indicate that the EEPROM is performing a write operation.

RDY/$\overline{\text{Busy}}$ Signal

RDY/$\overline{\text{Busy}}$ signal also allows status of the EEPROM to be determined. The RDY/$\overline{\text{Busy}}$ signal has high impedance except in write cycle and is lowered to V_{OL} after the first write signal. At the end of a write cycle, the RDY/$\overline{\text{Busy}}$ signal changes state to high impedance.

$\overline{\text{RES}}$ Signal (only the R1EV58064BxxR series)

When $\overline{\text{RES}}$ is low, the EEPROM cannot be read or programmed. Therefore, data can be protected by keeping $\overline{\text{RES}}$ low when V_{CC} is switched. $\overline{\text{RES}}$ should be high during read and programming because it doesn't provide a latch function.



$\overline{WE}$, $\overline{CE}$ Pin Operation

During a write cycle, addresses are latched by the falling edge of $\overline{WE}$ or $\overline{CE}$, and data is latched by the rising edge of $\overline{WE}$ or $\overline{CE}$.

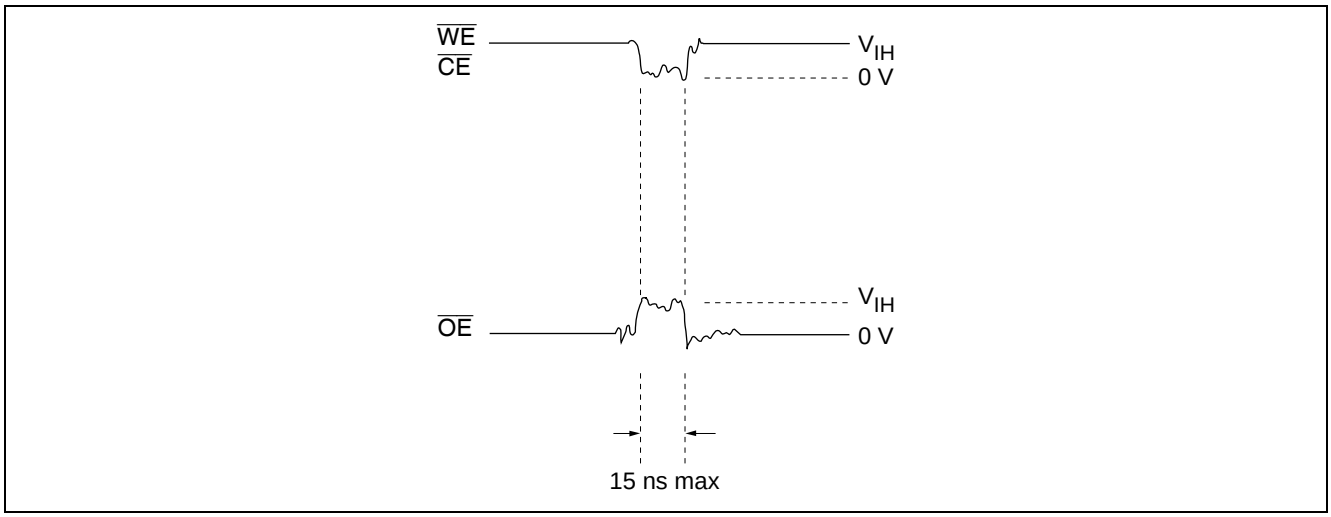
Write/Erase Endurance and Data Retention Time

The endurance is 10^5 cycles (1% cumulative failure rate). The data retention time is more than 10 years.

Data Protection

To prevent this phenomenon, this device has a noise cancellation function that cuts noise if its width is 15 ns or less.

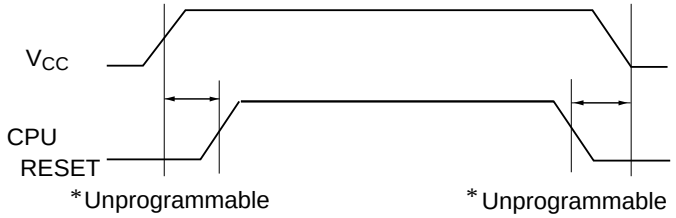
1. Data Protection against Noise on Control Pins ($\overline{CE}$, $\overline{OE}$, $\overline{WE}$) during Operation
   During readout or standby, noise on the control pins may act as a trigger and turn the EEPROM to programming mode by mistake. Be careful not to allow noise of a width of more than 15 ns on the control pins.



2. Data protection at V_{CC} on/off

When V_{CC} is turned on or off, noise on the control pins generated by external circuits (CPU, etc) may act as a trigger and turn the EEPROM to program mode by mistake. To prevent this unintentional programming, the EEPROM must be kept in an unprogrammable state while the CPU is in an unstable state.

Note: The EEPROM should be kept in unprogrammable state during V_{CC} on/off by using CPU RESET signal.



2.1 Protection by $\overline{CE}$, $\overline{OE}$, $\overline{WE}$

To realize the unprogrammable state, the input level of control pins must be held as shown in the table below.

$\overline{CE}$	V_{CC}	×	×
$\overline{OE}$	×	V_{SS}	×
$\overline{WE}$	×	×	V_{CC}

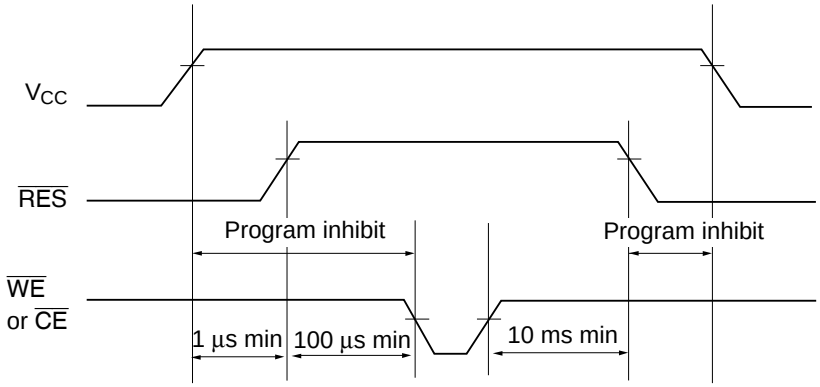
×: Don't care.

V_{CC}: Pull-up to V_{CC} level.

V_{SS}: Pull-down to V_{SS} level.

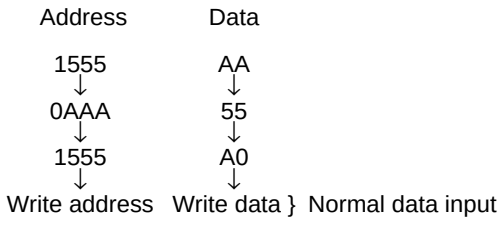
2.2 Protection by $\overline{RES}$ (only the R1EV58064BXXR series)

The unprogrammable state can be realized by that the CPU's reset signal inputs directly to the EEPROM's $\overline{RES}$ pin. $\overline{RES}$ should be kept V_{SS} level during V_{CC} on/off. The EEPROM breaks off programming operation when $\overline{RES}$ becomes low, programming operation doesn't finish correctly in case that $\overline{RES}$ falls low during programming operation. $\overline{RES}$ should be kept high for 10 ms after the last data input.

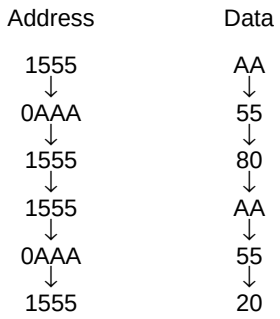


3. Software data protection

To prevent unintentional programming caused by noise generated by external circuits, this device has the software data protection function. In software data protection mode, 3 bytes of data must be input before write data as follows. And these bytes can switch the non-protection mode to the protection mode. SDP is enabled if only the 3 byte code is input.



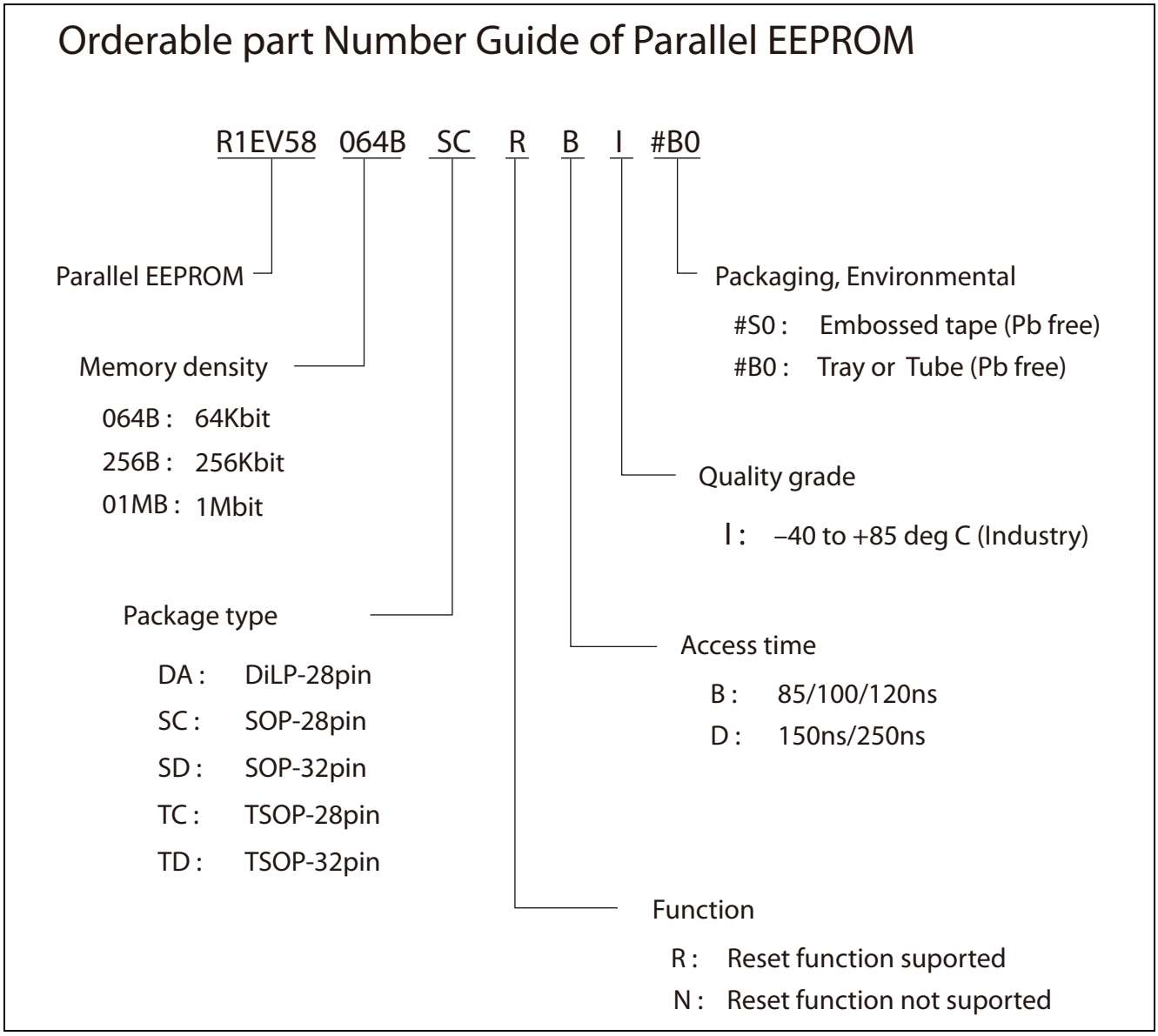
Software data protection mode can be canceled by inputting the following 6 bytes. After that, this device turns to the non-protection mode and can write data normally. But when the data is input in the canceling cycle, the data cannot be written.



The software data protection is not enabled at the shipment.

Note: There are some differences between Renesas Technology's and other company's for enable/disable sequence of software data protection. If there are any questions, please contact with Renesas Technology's sales offices.

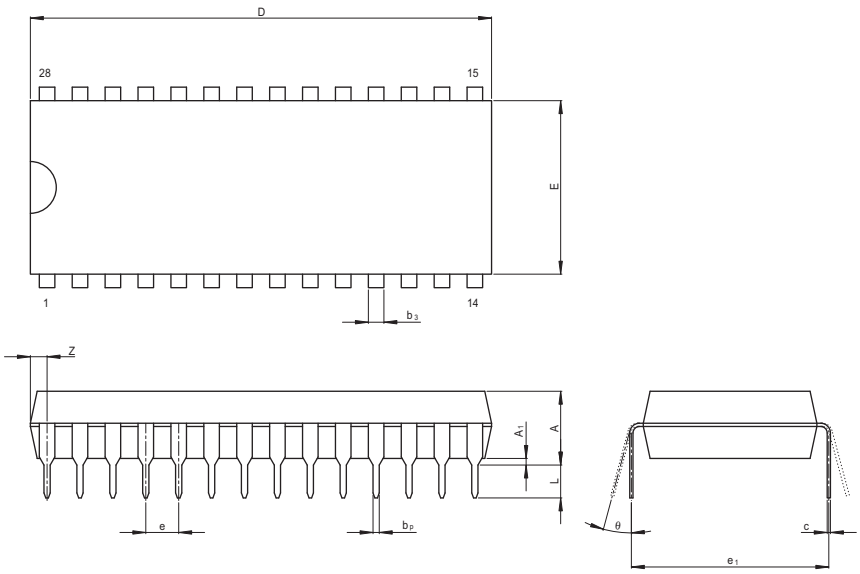
Orderable Part Number Guide



Package Dimensions

R1EV58064BDAN Series
R1EV58064BDAR Series (PRDP0028AB-A / Previous Code: DP-28V)

JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-DIP28-13.4x35.6-2.54	PRDP0028AB-A	DP-28/DP-28V	4.6g

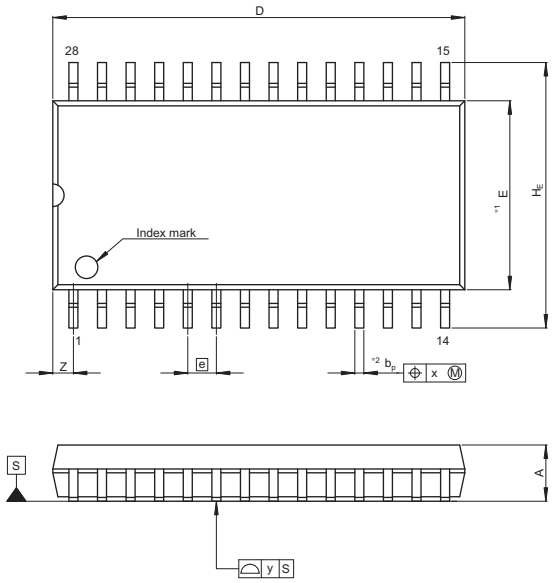


Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
e_1	—	15.24	—
D	—	35.6	36.5
E	—	13.4	14.6
A	—	—	5.70
A_1	0.51	—	—
b_p	0.38	0.48	0.58
b_3	—	1.2	—
c	0.20	0.25	0.36
θ	0°	—	15°
e	2.29	2.54	2.79
Z	—	—	1.9
L	2.54	—	—

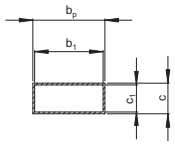
Package Dimensions (cont)

R1EV58064BSCN Series
R1EV58064BSCR Series (PRSP0028DC-A / Previous Code: FP-28DV)

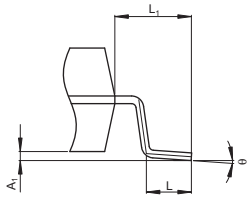
JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-SOP28-8.4x18.3-1.27	PRSP0028DC-A	FP-28D	0.7g



NOTE)
1. DIMENSION"*1"DOES NOT INCLUDE MOLD FLASH.
2. DIMENSION"*2"DOES NOT INCLUDE TRIM OFFSET.



Terminal cross section



Detail F

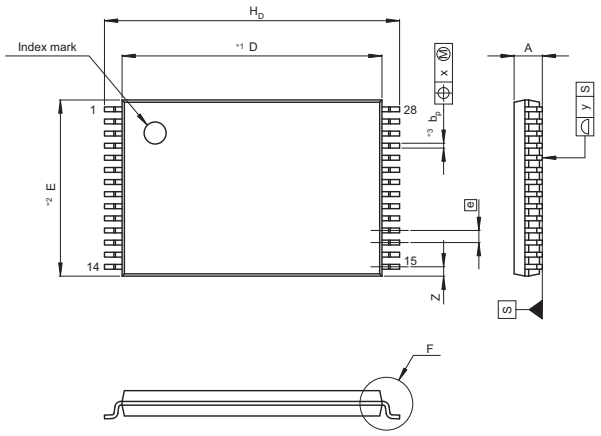
Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	—	18.3	18.8
E	—	8.4	—
A_2	—	—	—
A_1	0.10	0.20	0.30
A	—	—	2.50
b_p	0.32	0.40	0.48
b_1	—	0.38	—
c	0.12	0.17	0.22
c_1	—	0.15	—
θ	0°	—	8°
H_E	11.5	11.8	12.1
e	—	1.27	—
x	—	—	0.20
y	—	—	0.15
Z	—	—	1.12
L	0.8	1.0	1.2
L_1	—	1.7	—

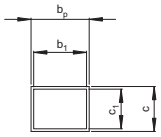
Package Dimensions (cont)

R1EV58064BTCN Series
R1EV58064BTCR Series (PTSA0028ZB-A / Previous Code: TFP-28DBV)

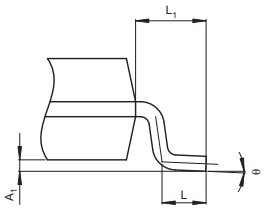
JEITA Package Code	RENESAS Code	Previous Code	MASS[Typ.]
P-TSOP(1)28-8x11.8-0.55	PTSA0028ZB-A	TFP-28DB/TFP-28DBV	0.23g

NOTE)
1. DIMENSION"*1"AND"*2(Nom)" DO NOT INCLUDE MOLD FLASH.
2. DIMENSION"*3"DOES NOT INCLUDE TRIM OFFSET.





Terminal cross section



Detail F

Reference Symbol	Dimension in Millimeters		
	Min	Nom	Max
D	—	11.80	—
E	—	8.00	8.20
A_2	—	—	—
A_1	0.05	0.13	0.20
A	—	—	1.20
b_p	0.14	0.22	0.30
b_1	—	0.20	—
c	0.12	0.17	0.22
c_1	—	0.15	—
θ	0°	—	5°
H_D	13.10	13.40	13.70
e	—	0.55	—
x	—	—	0.10
y	—	—	0.10
Z	—	—	0.45
L	0.40	0.50	0.60
L_1	—	0.80	—

Revision History	R1EV58064BxxN Series/R1EV58064BxxR Series Data Sheet

Rev.	Date	Description	
		Page	Summary
0.01	Oct 17, 2013	—	Initial issue
0.02	Oct 18, 2013	1	Features: Deletion of (only the R1EV58064BxxR series) for Ready/$\overline{\text{Busy}}$.
		20	Orderable part Number Guide: Deletion of A and C for access time.
0.03	Nov 12, 2013	2	Ordering Information: Addition Orderable Part Name "R1EV58064BSCNBI#S0", "R1EV58064BSCRBI#S0"
1.00	Jun 09, 2014	—	Delete preliminary

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